UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF VIRGINIA
Norfolk Division

BASF PLANT SCIENCE, LP,	)	
	)	
Plaintiff,	)	
	)	
v.	)	No. 2:17-cv-503
	)	
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION, GRANIS RESEARCH AND DEVELOPMENT CORPORATION, AND NUSEED PTY LTD,	)	
	)	
Defendants.	)	
	)	
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, GRAINS RESEARCH AND DEVELOPMENT CORP., AND NUSEED PTY LTD.,	)	
	)	
Plaintiffs- Counterclaimants	)	
	)	
v.	)	
	)	
BASF PLANT SCIENCE, LP, AND CARGILL, INC.,	)	
	)	
Defendants- Counterdefendants	)	

CLAIM CONSTRUCTION OPINION AND ORDER

On April 10, 2019, the Court held a hearing for the purpose of construing ten (10) disputed terms in the patents at issue and resolving two (2) motions to dismiss and a motion to compel discovery. At the hearing, the Court resolved the meanings for eight (8) of these terms and took the construction of two (2) terms under advisement. The Court hereby issues this Opinion and Order further detailing the Court's claim construction. The terms currently under advisement will be addressed in a forthcoming Opinion and Order.

I. FACTUAL BACKGROUND & PROCEDURAL HISTORY

This case is about United States patents on plant seeds which can formulate certain "long chain" polyunsaturated fatty acids.

BASF Plant Science, LP (collectively with counterclaim-defendant, BASF Plant Science GMBH, "BASF") is a self-described "pioneer" in developing plant-based biotechnology. Am. Compl. ¶ 15. Since 1998, BASF has attempted to create a plant which can make long chain omega-3 polyunsaturated fatty acids ("LC-PUFA"), docosahexaenoic acid ("DHA") and eicosapentaenoic acid ("EPA").[1] Id. In 2011, BASF and Cargill entered into an agreement to commercialize a canola oil product that would contain such fatty acids. Id. ¶¶ 16-18. BASF agreed to develop the seeds and obtain regulatory approval, and Cargill agreed to cultivate, process, extract, and commercialize the oil product. Id. ¶ 17. In November of 2017, BASF petitioned the United States Department of Agriculture for deregulation of canola seeds rich in the fatty acids. Id. ¶ 21. Approval is expected this year. Id.

The instant case began on September 19, 2017, when BASF Plant Science, LP filed a complaint for declaratory judgment against CSIRO, Grains Research and Development Corporation ("GRDC"), and Nuseed (collectively, "CSIRO"). Doc. 1. at 1.

CSIRO filed a motion to dismiss under rules 12(b)(1), (2), and (7) on December 26, 2017. Doc. 15. CSIRO argued that this Court lacked declaratory judgment jurisdiction, CSIRO had sovereign immunity, and without CSIRO this suit could not proceed as it is a necessary party. Doc. 16. This Court held a hearing on April 11, 2018. Doc. 41. On April 11, 2018, this Court **GRANTED** the motion in part, holding that there were insufficient facts to show a case or controversy. Doc. 40. The Court further **GRANTED** BASF leave to file a new complaint. Id.

[1] DHA and EPA are types of omega-3 fatty acids helpful to human health.

The Court took the sovereign immunity issues **UNDER ADVISEMENT**. Id. CSIRO later withdrew its sovereign immunity argument. Doc. 46.

On April 20, 2018, BASF filed its Amended Complaint, which remains effective today. Doc. 43. In the Amended Complaint, BASF seeks invalidity of the '849 patent, the '226 patent, the '572 patent, the '377 patent, the '432 patent, and the '410 patent. Am. Comp. ¶¶ 183-274. On April 30, 2018, CSIRO filed a motion to dismiss similar to its earlier motion. Doc. 45. In its second motion to dismiss, CSIRO argued that Cargill should be joined, there was no justiciable case or controversy, and withdrew its sovereign immunities claim. Doc. 46. While that motion was pending, CSIRO withdrew it on August 30, 2018. Doc. 54.

CSIRO answered the Amended Complaint on August 31, 2018. Doc. 56. In its Answer, CSIRO filed sixteen (16) counterclaims for patent infringement against BASF and joined Cargill as a counterclaim-defendant. Id. ¶¶ 31-279. CSIRO also asserted five (5) affirmative defenses, including lack of subject matter jurisdiction and standing. Id. ¶¶ 275-279.

BASF answered the counterclaims on September 21, 2018. Doc. 73. BASF also raised its own counterclaims. BASF counterclaimed for declaratory judgment that the patents on which CSIRO sues are invalid. CSIRO answered those counterclaims on October 12, 2018. Doc. 86.

The parties agreed that a Markman hearing was necessary. Doc. 239 at 6. On January 2, 2019, this Court scheduled the Markman hearing for April 10, 2019, and set the briefing schedule. Docs. 152, 153.

This case concerns the following United States Patents: 7,642,346; 7,807,849; 7,834,250; 8,106,226; 8,288,572; 8,575,377; 8,853,432; 9,458,410; 9,963,723; 9,926,579; 9,951,357; 9,970,033; 9,994,880; 9,994,792; 9,969,954; 9, 932, 541; and 10,125,084.

II. CLAIM CONSTRUCTION

The purpose of a Markman hearing is to assist the Court in construing the meaning of the patent(s) at issue. Markman v. Westview Instruments, Inc., 517 U.S. 370, 371 (1996); Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed. Cir. 1995), aff'd, 517 U.S. 370 (1996). Patents consist of "claims," and the construction of those claims "is a question of law, to be determined by the court." Markman, 517 U.S. at 371; Markman, 52 F.3d at 970–71.

A. LEGAL PRINCIPLES OF CLAIM CONSTRUCTION

i. General Principles

A court need only construe claims "that are in controversy, and only to the extent necessary to resolve the controversy." Vivid Techs., Inc. v. Am. Science Eng'g, Inc., 200 F.3d 795, 803 (Fed. Cir. 1999) (citations omitted). To be clear, "[c]laim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement. It is not an obligatory exercise in redundancy." NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282, 1311 (Fed. Cir. 2005) (citing U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997)).

Claim construction begins with the words of the claims. Vitronics Corp. v. Conceptromc, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("First, we look to the words of the claims themselves . . . ."). Words in a claim are generally given their ordinary meaning as understood by a person of ordinary skill in the art (a "POSITA"). Id. This "person of ordinary skill in the art is deemed to read the claim term not only in the particular claim in which the disputed term appears but also in the context of the entire patent, including the specification." Phillips v. AWH Corp., 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). "In some cases, . . . the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim

construction in such cases involves little more than application of the widely accepted meaning of commonly understood words." Id. at 1314. Often, however, "determining the ordinary and customary meaning of the claim requires examination of terms that have a particular meaning in a field of art. Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to those sources available to the public that show what a person of skill in the art would have understood disputed claims language to mean." Id.

Further, the claims themselves can provide substantial guidance as to the meaning of particular claim terms. Id. First, "the context in which a term is used within a claim can be highly instructive." Id. In addition, other claims of the patent in question, both asserted and unasserted, can also be useful because claim terms are "normally used consistently throughout the patent" and therefore "can often illuminate the meaning of the same term in other claims." Id.

The claims should not be read alone, however, but rather should be considered within the context of the specification of which they are a part. Markman, 52 F.3d at 978. As the Federal Circuit stated in Vitronics and restated in Phillips, "the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." Phillips, 415 F.3d at 1315. The Court, however, must not read in limitations from the specification without clear intent to do so. Thorner v. Sony Comp. Entmt. Am. LLC, 669 F.3d 1362, 1366 (Fed. Cir. 2012). Furthermore, a patentee is free to be his or her own lexicographer, and thus if the patentee defines a term in the specification differently than its ordinary meaning, the patentee's definition controls. Phillips, 415 F.3d at 1316.

In addition to consulting the specification, a court may also consider the patent's prosecution history, if in evidence, because it provides information regarding how the United

States Patent and Trademark Office and the inventor understood the patent. See id. at 1317. It also enables the Court to determine if the inventor limited the invention during the course of prosecution. Id. "[W]here an applicant whose claim is rejected on reference to a prior patent ... voluntarily restricts himself by an amendment of his claim to a specific structure, having thus narrowed his claim in order to obtain a patent, he may not by construction ... give the claim the larger scope which it might have had without the amendments." I.T.S. Rubber Co. v. Essex Rubber Co., 272 U.S. 429, 444 (1926). Thus, consulting prior art reference in the prosecution history is permissible. Vitronics, 90 F.3d at 1583.

These elements of the patent itself—the claims, the specification, and its prosecution history—constitute intrinsic evidence of claim construction. In addition to such intrinsic evidence, a court may consider extrinsic evidence to determine the meaning of disputed claims. Phillips, 415 F.3d at 1317. Such extrinsic evidence "consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." Phillips, 415 F.3d at 1317 (citing Markman, 52 F.3d at 980). However, the Court should not rely on extrinsic evidence when the intrinsic evidence removes all ambiguity. Vitronics, 90 F.3d at 1583.

Such extrinsic evidence generally is held as less reliable than the intrinsic evidence and "is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of intrinsic evidence." Id. at 1317–18. With respect to expert evidence, for example, "[c]onclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court . . . [and] a court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent." Id. at 1318.

With respect to general usage dictionaries, the Federal Circuit noted that "[d]ictionaries or comparable sources are often useful to assist in understanding the commonly understood meaning of words and have been used . . . in claim construction," and further noted that "a dictionary definition has the value of being an unbiased source 'accessible to the public in advance of litigation.'" Id. at 1322 (citing Vitronics, 90 F.3d at 1585). However, the Federal Circuit cautions that (1) "'a general-usage dictionary cannot overcome art-specific evidence of the meaning' of a claim term;" that (2) "the use of the dictionary may extend patent protection beyond what should properly be afforded by the inventor's patent;" and that (3) "[t]here is no guarantee that a term is used in the same way in a treatise as it would be by the patentee." Phillips, 415 F.3d 1322 (quoting Vanderlande Indus. Nederland BV v. Int'l Trade Comm'n, 366 F.3d 1311, 1321 (Fed. Cir. 2004)).[2] Indeed, "different dictionary definitions may contain somewhat different sets of definitions for the same words. A claim should not rise or fall based upon the preferences of a particular dictionary editor, . . . uninformed by the specification, to rely on one dictionary rather than another." Id.

ii. Indefiniteness

Whether a patent is invalid is a legal question. Enzo Biochem, Inc. v. Applera Corp., 599 F.3d 1325, 1331 (Fed. Cir. 2010). "[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." Nautilus, Inc. v.

[2] In Phillips, the Federal Circuit thus expressly discounted the approach taken in Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F. 3d 1193 (Fed. Cir. 2002), in which the court placed greater emphasis on dictionary definitions of claim terms. Phillips, 415 F.3d at 1319–24 ("Although the concern expressed by the court in Texas Digital was valid, the methodology it adopted placed too much reliance on extrinsic sources such as dictionaries, treatises, and encyclopedias and too little on intrinsic sources, in particular the specification and prosecution history."). The Federal Circuit reaffirmed the approach in Vitronics, Markman, and Innova as the proper approach for district courts to follow in claim construction, but acknowledged that there was "no magic formula" for claim construction, and that a court is not "barred from considering any particular sources . . . as long as those sources are not used to contradict claim meaning that is unambiguous in light of the intrinsic evidence." Phillips, 415 F.3d at 1324.

Biosig Instruments, Inc., 134 S. Ct. 2120, 2124 (2014). "'Because a patent is presumed to be valid, the evidentiary burden to show facts supporting a conclusion of invalidity is one of clear and convincing evidence.'" Enzo Biochem, 599 F.3d at 1331 (quoting Young v. Lumenis, Inc., 492 F.3d 1336, 1344 (Fed. Cir. 2007)).

It is not the Court's "function to rewrite claims to preserve their validity." Allen Eng'g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1349 (Fed Cir. 2002) (citing Rhine v. Casio, Inc., 183 F.3d 1342, 1345 (Fed. Cir. 1999)). Courts have found claims indefinite and thus invalid if they cannot discern the scope of a truncated limitation, for example. See id. at 1348–49. Additionally, a court may not adopt "a completely subjective construction of" a claim term in order to find it valid. See Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1350–51 (Fed. Cir. 2005) (abrogated on other grounds, Nautilus, 134 S. Ct. 2120). Thus, if the parties offer no objective definitions of a disputed term, the term is indefinite. See id.

iii. Correcting Errors in Claim Language

A district court may correct obvious errors in a patent claim. CBT Flint Partners, LLC v. Return Path, Inc., 654 F.3d 1353, 1358 (Fed. Cir. 2011). Generally, a court should only make corrections where: "(1) the correction is not subject to reasonable debate based on the consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims." Id. The Federal Circuit has held that a court should not make corrections to claim language if the corrections are "substantively significan[t]" or require guesswork as to the patentee's intent. NOVO Industries, LP v. Micro Molds Corp., 350 F.3d 1348, 1358 (Fed. Cir. 2003); see also CBT Flint, 654 F.3d at 1358. If a court finds that there are multiple reasonable alternatives, the district court should consider those alternatives from the POSITA's point of view to determine whether the correction is appropriate. CBT Flint, 354 F.3d at 1358

(holding that whether to add "and" between "defect analyze" was obvious to a POSITA and the district court should have made that correction).

B. "THE CANONS OF CLAIM CONSTRUCTION"

The Federal Circuit has recognized certain guideposts, or "canons of construction," to assist a district court in determining the meaning of disputed claim terms and phrases. These are merely guideposts, however, and are not immutable rules:[3]

1. Doctrine of Claim Differentiation: Ordinarily, each claim in a patent has a different scope. See, e.g., Versa Corp. v. Ag-Bag Int't Ltd., 392 F.3d 1325, 1330 (Fed. Cir. 2004). Ordinarily, a dependent claim has a narrower scope than the claim from which it depends. See, e.g., Phillips, 415 F.3d at 1315. Ordinarily, an independent claim has a broader scope than a claim that depends from it. See, e.g., Free Motion Fitness, Inc. v. Cybex Int'l, Inc., 423 F.3d 1343, 1351 (Fed. Cir. 2005).

2. Ordinarily, claims are not limited to the preferred embodiment disclosed in the specification. See, e.g., Phillips, 415 F.3d at 1323.

3. Ordinarily, different words in a patent have different meanings. See, e.g., Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1119–20 (Fed. Cir. 2004).

4. Ordinarily, the same word in a patent has the same meaning. See, e.g., Phillips, 415 F.3d at 1314.

5. Ordinarily, the meaning should align with the purpose of the patented invention. See, e.g., Innovad Inc. v. Microsoft Corp., 260 F.3d 1326, 1332–33 (Fed. Cir. 2001).

6. Ordinarily, general descriptive terms are given their full meaning. See, e.g., Innova/Pure Water, Inc., 381 F.3d at 1118.

7. If possible, claims should be construed so as to preserve their validity. See, e.g., Energizer Holdings, Inc. v. Int'l Trade Comm'n, 435 F.3d 1366, 1370–71 (Fed. Cir. 2006).

[3] This list is derived from the one provided in the FEDERAL JUDICIAL CENTER, PATENT LAW AND PRACTICE § 5.I.A.3.d (5th ed. 2006).

8. Ordinarily, absent broadening language, numerical ranges are construed exactly as written. See, e.g., Jeneric/Pentron, Inc. v. Dillon Co., 205 F.3d 1377, 1381 (Fed. Cir. 2000).

9. Ordinarily, absent recitation of order, steps of a method are not construed to have a particular order. See, e.g., Combined Sys., Inc. v. Def. Tech. Corp. of Am., 350 F.3d 1207, 1211–12 (Fed. Cir. 2003).

10. Absent highly persuasive evidentiary support, a construction should literally read on the preferred embodiment. See, e.g., Cytologix Corp. v. Ventana Med. Sys., Inc., 424 F.3d 1168, 1175 (Fed. Cir. 2005).

C. DISPUTED TERMS

The following table lists the terms disputed by the parties, each parties' proposed construction and the relevant patents and claims to each disputed term. Prior to the hearing, the parties agreed on the construction of seven (7) other terms not described in this Opinion and Order. Doc. 239 at 2-5.

Term at Issue	CSIRO's Proposed Construction	BASF & CARGILL's Proposed Constructions	Asserted Claims Including the Term[4]
1. "at least [X]%"	"greater than or equal to X%, and less than the inherent upper limit enabled by the specification"	**BASF's construction:** The term "at least [X]%" has its plain and ordinary meaning. **Cargill's Construction:** The term "at least 2.5% ω3 C20 fatty acids (w/w)" means "at least 2.5% but no more than 5.1% ω3 fatty acids with exactly 20 carbons (w/w)." Alternatively, the term "at least 2.5% ω3 C20 fatty acids (w/w)" means "between 2.5%-100% ω3 fatty	'849 claims 1, 3-6, 10, 11 '226 claims 1, 3-18 '572 claims 1, 3-18 '377 claims 1, 3-18 '432 claims 1, 3-18, 26-40

[4] Only claims which explicitly contain the claim term in question are identified in this table. Claims which depend from these claims implicitly contain the claim term in question by reference.

		acids with exactly 20 carbons (w/w)."	'410 claims: 1-15 '723 claims 1, 2, 6- 10, 16 '579 claims 1, 7[5] '357 claims 28-30, 39-41, 43-45 '792 claims 1,[6] 5 '541 claims 1, 7, 8, 15, 20, 21 '954 claims 7, 8, 20, 21 '084 claims 1, 9
2. "less than [X]%"	"less than X%, and greater than or equal to the inherent lower limit enabled by the specification"	Plain and ordinary meaning.	'849 claim 6 '226 claim 5 '572 claim 5 '377 claim 5 '432 claims 5, 28 '410 claim 3

[5] CSIRO disagrees that '579 claims 1 and 7 contain the term "at least [X]%." The claims are included here as a compromise to reflect the dispute between the parties.

[6] CSIRO disagrees that '792 claim 1 contains the term "at least [X]%."

			'541 claims 1, 2, 15, 16 '954 claims 1, 2, 15, 16 '084 claims 1, 4, 10, 11
3. "comprises [X]%	"greater than X%, and less than the inherent upper limit enabled by the specification"	"comprises exactly [X]%"	'723 claims 1, 3-5, 18 '250 claims 4, 5 '357 claims 25-27, 38, 42
4. "includes [X]%"	"greater than X%, and less than the inherent upper limit enabled by the specification"	"includes exactly [X]%"	'250 claim 1
5. "SEQ ID NO:[X]"	no construction necessary If construed, "the nucleotide or amino acid sequence identified by the number X in the relevant patent or an equivalent sequence."	"the exact sequence identified as SEQ ID NO:[X]"	'579 claims 1, 7 '033 claims 1, 6, 15 '792 claims 1, 2 '880 claim 11 '346 claims 6, 7
6. "seed-preferred promoter"	Non-limiting. If limiting, no construction necessary. If construed, "seed-specific promoter."	**BASF's and Cargill's construction:** The term "seed-preferred promoter" is indefinite. **Cargill's alternate construction:**	'346 claim 7

		plain and ordinary meaning	
7. "operably linked to one or more promoters that are capable of directing expression . . . in [the cell/seed]"	No construction necessary. If construed, "linked to one or more promoters that are capable of stimulating or modulating the transcription of the coding sequence in an appropriate cell."	The term "capable of directing expression . . . in [the cell/seed]" means "capable of causing expression . . . in [the cell/seed]."	'250 claim 8[7] '357 claims 1, 8, 38-45
8. "a [desaturase/ elongase] which catalyses [desaturation/elongation] of [fatty acid 1] to [fatty acid 2]"	No construction necessary. If construed, "a [desaturase/elongase] capable of catalyzing [desaturation/elongation] of [fatty acid 1] to [fatty acid 2].	The term "catalyses [desaturation/elongation]" means "[desaturates/elongate]."	'880 patent claims 1, 2,[8] 8, 9
9. "a desaturase [an exogenous desaturase] which desaturates an acylCoA substrate"	No construction necessary. If construed, "a desaturase capable of desaturating an acyl-CoA substrate."	**BASF's Construction**: no construction necessary **Cargill's Construction**: The term "a desaturase [an exogenous desaturase] which desaturates an acylCoA substrate" means "a vertebrate desaturase [a vertebrate exogenous desaturase] which desaturates an acyl-CoA substrate."	'250 patent claims 1, 6, 7 '579 patent claims 1, 7 '033 patent claims 4, 5, 10, 19, 31-34
10. "the extracted canola oil"	"the extracted oil"	**BASF's construction**: no construction necessary **Cargill's construction**: Plain and ordinary	'541 patent claims 5, 18

[7] CSIRO disagrees that '250 claim 8 contains the term "operably linked to one or more promoters that are capable of directing expression . . . in [the cell/seed]."

[8] CSIRO disagrees that '880 patent claim 2 contains the term "a [desaturase/elongase] which catalyses [desaturation/elongation] of [fatty acid 1] to [fatty acid 2]."

		meaning. Alternatively, "oil that has been produced directly from seeds without further processing or purification."	

(1) "at least [x]%"

This term appears in an extraordinarily high number of disputed patent claims, one-hundred twenty-two (122) asserted claims across thirteen (13) patents. The parties advised the Court that they are in the process of narrowing the number of asserted claim. However, the Court **ORDERED** that the proper construction of **"at least [x]%"** generally is **the term's plain and ordinary meaning.**

This construction was proposed by BASF. CSIRO argued that this term should be constructed so as to refer to a number "greater than or equal to X%, and less than the inherent upper limit enabled by the specification."

Generally, this term will have its plain and ordinary meaning. That is to say it sets a minimum value, whatever [x] may be in the relevant context, but by itself the term does not set an upper limitation. The Court recognizes that an inherent upper limit may be appropriate given the specification or context of the term,[9] but given the fact that this term appears in so many claims and patents, it unworkable to attempt to go through each instance.[10] Accordingly, the Court will give the term its plain and ordinary meaning, and once the parties have winnowed their claims, they may move to have an upper limit imposed on the relevant claims.

[9] For example, consider claim 4 of the '226 patent. It reads: "The process of claim 1, wherein the total fatty acid of the plant seed comprises at least 1.5% eicosapentaenoic acid ["EA"] and at least 0.13% docosapentaenoic acid ["DA"] (w/w)." (emphasis added). In that claim the "total fatty acid" must contain at least 1.5% EA and .13% DA. Accordingly, the total fatty acid cannot be 100% of both or either. The implied upper limit for EA would be 99.87% (100 – DA minimum [.13]), and the limit for DA would be 98.5% (100 – EA minimum [1.5]).

[10] Indeed, in their briefs and at oral argument, the parties did not attempt to work through each of the term's appearances.

(2) "at least [x]%"

This term appears in claim 5 of the '226 patent; claim 6 of the '849 patent; claim 5 of the '572 patent; claim 5 of the '377 patent; claims 5 and 28 of the '432 patent; claim 3 of the '410 patent; claims 1, 2, 15, and 16 of the '954 patent; and claims 1, 4, 10, and 11 of the '084 patent. The Court **ORDERED** that this term be given its **plain and ordinary meaning.**

Much like the "at least [x]%" term, the term itself does not imply a lower limitation; however, the context in which it is used, or its corresponding specification and prosecution history, may suggest to a POSITA that a lower limit was intended. However, again like the "at least [x]%" term, going through each claim and each patent is unworkable. Accordingly, the Court gives this term its plain and ordinary meaning, but once claims are winnowed, the parties may request that this Court construe individual terms to have an implied lower limit.

(3) "comprises [x]%"

This term appears in asserted claims 4 and 5. It also appears in asserted claims 1, 3-5, and 18 of the '723 patent. The Court **ORDERED** that the proper construction of this term is **"comprises exactly [x]% of [relevant element], allowing for a small variance for 'manufacturing irregularities' expected by a POSITA. Other elements, of course, may be present notwithstanding this term."** This is largely the construction proposed by BASF and Cargill.[11] CSIRO argued that "comprises" is an open-ended term and therefore could include more than [x]%. CSIRO essentially argues that the Court should read in "at least" into the term so that it would read "comprises at least [x]%." The Court first observes that "comprises at least [x]%" was used verbatim in some of the claims already. E.g., U.S. Patent No. '226 Claim 6, supra n.9 ("The process of claim 1, wherein the total fatty acid of the plant seed **comprises at least** 1.5%

[11] At oral argument counsel for Cargill conceded that this term may allow for "fluctuations." Hr'g Tr. 66:22-25, 67:1-8.

eicosapentaenoic acid **and at least** 0.13% docosapentaenoic acid (w/w).") (emphasis added). In some contexts, the patentee originally wrote "comprises at least [x]%" and abandoned the phrase "at least" during prosecution. Such editing would be unnecessary if "comprises" meant "comprises at least." Thus, the Court is cognizant that "comprises [x]%" and "comprises at least [x]%" must have separate meanings.

The Court **FINDS** that by stating that a given seed "comprises [x]%" of a particular protein or other element, without more, the patentee was stating that the invention claimed contains that percentage of the relevant protein, and not some undefined range. Of course, an allowance must be made for inevitable irregularities. Imagine a claim which stated, ". . . comprises 2% of DPA . . . ." Such a claim refers to an invention that has 2% DPA, not, say, 60% DPA. However, an invention which contained 2.01%[12] would arguably infringe the 2% product. Accordingly, the Court declines CSIRO's request to read in an inherent limit, but the Court does recognize that certain irregularities may inevitably occur.

Furthermore, "comprises [x]%" does not prevent other elements from being in the product. To use the earlier example, "comprises 2% of DPA" would not foreclose 5% EPA from being present in the invention as well.

(4) "includes [x]%"

This term appears in asserted claim 1 of the '250 patent. The parties agree that "includes" and "comprises" have identical meanings. The Court **ORDERED** that this term have the same construction as "comprises [x]%." Accordingly, the correct construction is **"includes exactly [x]% of [relevant element], allowing for a small variance for 'manufacturing irregularities'**

[12] This is obviously an example for illustrative purposes only. The Court is not suggesting that the allowance is .005% of the given value or .01%. The question is whether the difference is material and thus could not be described as an "irregularity." Whether it is material would be up to the opinion of a POSITA. When the claims are winnowed, if the parties have extrinsic evidence which may suggest a limit for a material allowance or irregularity.

expected by a POSITA. Other elements, of course, may be present notwithstanding this term."

(5) "SEQ. ID No. [X]"

This term appears in claims 6 and 7 of the '346 patent. The Court **ORDERED** that this term be left as it is; accordingly, "SEQ. ID No. [x]" means exactly that – "Sequence ID number [x]." As CSIRO argued at oral arguments, this term is merely an identifier for a particular sequence of amino acids. Hr'g Tr. 70:25, 71:1-5. The Court agrees. BASF argued that this Court should read in the term "exactly" into the term. BASF argued that its interpretation is supported by a prosecution disclaimer. Id. at 71:10-18; 74:18-25. While the patentee did in fact remove "wiggle words," the Court does not think that this requires rewriting the language that the Examiners approved. The term is clear: sequence ID number [x] means sequence ID number [x].

(6) "seed-preferred promoter"

This term appears in asserted claim 7 of the '346 patent. The Court **ORDERED** that this term be read to mean **"seed-specific promoter."** This term appears in asserted claim 7 of the '346 patent. Claim 7 reads: "A chimeric nucleic acid molecule comprising: (a) a seed-specific promoter obtained from flax which comprises: the nucleic acid sequences shown in fig. 3 (seq. ID no. 6) from nucleotides 1 to 398 and (b) a second nucleic acid sequence non-native to said flax seed-preferred promoter." U.S. Patent No. '346 cl. 7, col. 62, ll. 56-63 (emphasis added). Ordinarily, different terms used in the same claim should be given different meanings. MicroStrategy Inc. v. Business Object Americas, 238 F. App'x, 603, 609 (Fed. Cir. 2007) ("[O]ur case law instructs that different claim terms are presumed to have different meanings.") (finding that absent "evidence that [different] terms have the same meaning," a court should find different meaning as well).

Relying on that principle, BASF argues that "seed-preferred promoter" and "seed-specific promote"" are different terms with different meanings.

However, the claim language itself shows otherwise. The claim language opens by showing that it refers to "a seed-specific promoter obtained from flax" then states that there is second sequence "non-native to **said** flax seed-preferred promoter." U.S. Patent No. '346 cl. 7 (emphasis added). Thus, the claim language indicates that "seed-specific promoter" and "seed-preferred promoter," although different terms, refer to the same thing. Thus, the presumption of different meanings is rebutted. Accordingly, the Court construes these two (2) terms to have the same meaning.

(7) "operably linked to one or more promoters that are capable of directing expression . . . in [the cell/seed]."

This term appears in asserted claim 8 of the '250 patent and claims 1, 8, 38-45 of the '357 patent. While the parties seemed to dispute this term in their papers, at oral argument, BASF and CSIRO agreed that **THIS TERM REQUIRES NO CONSTRUCTION**. The dispute seemed to revolve around whether "directing" should be rewritten as "causing." However, at argument, counsel for CSIRO asked this Court to keep the terms as written, hr'g tr. 87:14-17, and counsel for BASF indicated that "directing" and "causing" mean the same thing and that construction is not necessary, id. at 87:18-25.

While the Court is concerned that some of the words in this term – and in other terms – may be too technical for a jury, the Court agrees that this term requires no construction as a matter of law. At oral arguments, the Court and the parties discussed a different way to phrase this term to a jury; the phrasing on which parties and the Court agreed is: **"Operably linked to one or more promoters that are capable of causing the gene to become a protein."**

(8) "a [desaturase/ elongase] which catalyses [desaturation/elongation] of [fatty acid 1] to [fatty acid 2]."

This term is only present in the '880 patent, claims 1, 2, 8 and 9. The Court **ORDERED** that this term be defined as **"a desaturating / elongating enzyme which change [fatty acid 1] to [fatty acid 2]."** The Court engaged in a lengthy discussion with counsel from CSIRO about the meaning of the plain English meaning of the scientific jargon used in this term. After that discussion, and reviewing the papers, the Court is satisfied that this definition adequately captures the meaning of the term as it would be understood by a POSITA. The Court permitted the parties an opportunity to agree on a different meaning of this term. As far as this Court is aware at this date, no such agreement has been made. Accordingly, the Court will use this definition.

To the extent that the parties disagree as to whether the claim requires actual desaturation or elongation, the Court **FINDS** that actual desaturation or elongation is required by the term. To begin, the ordinary meaning of the words used in the claim suggest such an interpretation: "which catalyses," not "which [may/can/is capable of] catalyse/catalyzing." Moreover, the '880 specification draws such a distinction. Compare, e.g., U.S. Patent No. '880 at col. 3 ll. 25-27 ("The enzyme Δ5 desaturase catalyses the further desaturation of C20 LC-PUFA . . . ."), with id. at col. 25 ll. 57-61 ("In one embodiment, the Δ5/Δ6 bifunctional elongase is able to catalyse the elongation of EPA to form . . . .").

(9) "a desaturase [an exogenous desaturase] which desaturates an acyl-CoA Substrate."

This term appears in asserted claims 1, 6, and 7 of the '250 patent. The term also appears in claims 1 and 7 of the '579 patent and claims 4, 5, 10, 19, and 31-34 of the '330 patent. The Court **ORDERED** further briefing on this term and took its construction **UNDER**

ADVISEMENT. The dispute on this term is particularly important, whether the identified patents are limited to a vertebrate desaturase or cover desaturases regardless of their origin. Accordingly, the Court will review the additional briefing and continue to consider the arguments of counsel and the evidence in the record. When the Court decides how to construe the term, if construction is necessary, the Court will issue a supplementary Opinion and Order.

(10) "the extracted canola oil"

This term appears in claims 5 an 18 of the '541 patent. The Court took this term **UNDER ADVISEMENT** without further briefing. Much like term nine, the Court recognizes that this is an important issue and both sides have advanced good arguments for their respective positions. Whether the inclusion of "canola" was an inadvertent typographical error or an intentional limitation could have significant consequences on the scope of these patents. Accordingly, the Court will continue to consider the evidence presented and arguments made as to this dispute and will issue a supplementary Opinion and Order on this term.

III. CONCLUSION

For the reasons stated on the record and elaborated herein the Court constructed the disputed terms as follows:

Disputed Term	The Court's Construction
1. "at least [X]%"	This term generally has its plain and ordinary meaning. Whether an upper limit is included depends on the context of the exact claim. The Court will determine whether such limits should be read into the asserted claims after the claim winnowing process.
2. "less than [X]%"	This term generally has its plain and ordinary meaning. Whether a lower limit is included depends on the context of the exact claim. The Court will determine whether such limits should be read into the asserted claims after the claim winnowing process.

3. "comprises [X]%"	This term means, comprises exactly [x]% of [relevant element], allowing for a small variance for 'manufacturing irregularities' expected by a POSITA. Other elements, of course, may be present notwithstanding this term.
4. "includes [X]%"	This term means the same as "comprises [x]%."
5. "SEQ ID NO:[X]"	No construction is necessary – this term means what it says.
6. "seed-preferred promoter"	This term will be read to mean "seed-specific promoter."
7. "a [desaturase/ elongase] which catalyses [desaturation/elongation] of [fatty acid 1] to [fatty acid 2]"	This term requires no construction. However, the term will be phrased to the jury in a different way to facilitate their comprehension of otherwise complicated and technical jargon. The parties and the Court agree that an appropriate phrasing is: "Operably linked to one or more promoters that are capable of causing the gene to become a protein."
8. "a [desaturase/ elongase] which catalyses [desaturation/elongation] of [fatty acid 1] to [fatty acid 2]."	This term means "a desaturating / elongating enzyme which change [fatty acid 1] to [fatty acid 2]."
9. "a desaturase [an exogenous desaturase] which desaturates an acylCoA substrate"	TAKEN UNDER ADVISEMENT
10. "the extracted canola oil"	TAKEN UNDER ADVISEMENT

The Clerk is **REQUESTED** to deliver a copy of this Opinion and Order to all counsel of record.

It is so **ORDERED.**

/s/
Henry Coke Morgan, Jr.
Senior United States District Judge

HENRY COKE MORGAN, JR.
SENIOR UNITED STATES DISTRICT JUDGE

Norfolk, Virginia
April 29, 2019